

ASSIGNMENT 2

Textbook Assignment: “The Link-11 System,” chapter 2, pages 2-7 through 2-23; “Link-11 Fault Isolation,” chapter 3, pages 3-1 through 3-7.

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| <p>2-1. Net Sync continuously broadcasts which of the following signals?</p> <ol style="list-style-type: none">1. Phase reference frames2. Start codes3. Stop code4. Preamble frames | <p>2-5. During transmission of the preamble, the 605 Hz tone is transmitted at which of the following power levels?</p> <ol style="list-style-type: none">1. -6 dB2. +6 dB3. -12 dB4. +12 dB |
| <p>2-2. When the stored sync mode is operating, the picket station uses which of the following signals to establish a time base?</p> <ol style="list-style-type: none">1. An external frequency standard2. The internal frequency standard in the DTS3. The sync signal received from NCS4. The sync signal received from another picket | <p>2-6. To enable the DTS to detect frame transitions during the preamble, the 2,915 HZ sync tone is phase shifted how many degrees at each frame?</p> <ol style="list-style-type: none">1. 902. 1803. 2704. 360 |
| <p>2-3. Which of the following functions is NOT tested when Net Test is running?</p> <ol style="list-style-type: none">1. DTS to radio interface2. CDS computer to DTS interface3. Radio to antenna interface4. Radio receiver function | <p>2-7. The phase reference frame of a Link-11 header performs which of the following functions?</p> <ol style="list-style-type: none">1. Provides synchronization between the DTS and the CDS computer2. Provides a time reference for the DTS3. Provides a time reference for the radio4. Provides the reference to extract the data in the next frame |
| <p>2-4. The preamble of a Link-11 message consists of a total of how many frames?</p> <ol style="list-style-type: none">1. Five2. Six3. Seven4. Eight | |

- 2-8. During a receive cycle, the start code causes which of the following actions?
1. The CDS computer to send the prepare to receive data interrupt
 2. The DTS to send the prepare to receive data interrupt
 3. The CDS computer to send the prepare to transmit data external function
 4. The DTS to send the prepare to transmit data interrupt
- 2-9. Exactly how many data bits are contained in each Link-11 information frame?
1. 18
 2. 24
 3. 30
 4. 32
- 2-10. The control stop code is generated by which of the following units?
1. NCS only
 2. Picket station only
 3. Either NCS or a picket station, indicating the end of a control message
- 2-11. During a receive cycle, the stop code (control or picket) causes which of the following actions?
1. The CDS computer to send the end of data interrupt
 2. The DTS to send the end of data external function
 3. The CDS computer to send the end of receive interrupt
 4. The DTS to send the end of receive interrupt
- 2-12. A call-up, or interrogation message consists of a total of how many frames?
1. Five
 2. Six
 3. Seven
 4. Eight
- 2-13. The two frames following a control stop code indicate which of the following?
1. The address of the NCS
 2. The next picket address in the roll call
 3. The end of the NCS message
 4. The last address interrogated
- 2-14. A picket reply message is sent in which of the following sequences?
1. Preamble, phase reference, data, stop code
 2. Preamble, phase reference, start code, data, control stop code
 3. Preamble, phase reference, start code, data, picket stop code
 4. Phase reference, preamble, start code, data, stop code
- 2-15. The DTS operates in full duplex when it performs which of the following operations?
1. System testing
 2. Net Test
 3. Normal operations
 4. Short Broadcast
- 2-16. The DTS performs which of the following functions?
1. Data encryption
 2. Error detection and correction
 3. Track gridlock
 4. Transmitting data tones on a carrier frequency

- 2-17. The six hamming bits added to the data word enables the DTS to correct what maximum number of data bits?
1. One
 2. Two
 3. Three
 4. Four
- 2-18. The DTS is operating in the detect and correct mode. A data word is received by the CDS computer with bit 24=0, and bit 25=1. Which of the following conditions is indicated by this bit combination?
1. No errors detected
 2. Parity error(s) detected
 3. Odd bit error(s) detected, correction attempted
 4. Even errors detected, no correction attempted
- 2-19. The DTS develops a composite signal consisting of what total number of frequency division multiplexed audio-frequency tones?
1. 2
 2. 11
 3. 16
 4. 30
- 2-20. Bits 4 and 5 of a 30-bit data word are carried by which of the following audio tone frequencies?
1. 935 Hz
 2. 1,155 Hz
 3. 1,265 Hz
 4. 1705 Hz
- 2-21. What is the basic unit of the Link-11 transmission?
1. Bit
 2. Tone
 3. Frame
 4. Doppler
- 2-22. In a single frame, the DTS can tolerate what maximum phase shift error without generating an error code?
1. + 44 degrees only
 2. - 44 degrees only
 3. \pm 44 degrees
 4. \pm 135 degrees
- 2-23. A phase-shift error of +105 degrees in any one of the data tones will cause a single bit to be erroneous.
1. True
 2. False
- 2-24. Which of the following Link-11 signals allows the receiving unit to correct errors caused by the relative motion between the sending and receiving units?
1. Sync tone
 2. Doppler tone
 3. Data carrying tones
 4. Motion correct tone
- 2-25. During the preamble, the 2,915 Hz tone sets which of the following references?
1. Frame timing when the DTS is in corrected timing
 2. Signal power levels when the DTS is in corrected timing
 3. Frame timing when the DTS is in stored timing
 4. Signal power levels when the DTS is in stored timing

- 2-26. During the reception of the data segment of a Link-11 message, the 605 Hz Doppler tone should be at which of the following power levels?
1. +12 dB
 2. + 6 dB
 3. - 6 dB
 4. 0 dB
- 2-27. When the DTS is in the OPERATE mode, exactly how many fault-sensing sensors can cause the SUMMARY FAULT lamp to light?
1. 11
 2. 14
 3. 23
 4. 27
- 2-28. The LAMP TEST switch on the Mode Control Panel will cause all of which of the following lamps to light?
1. Those on the mode control panel only
 2. Those on the TADIL A control panel only
 3. Those on the address control unit only
 4. Those on the mode control panel, the TADIL A control panel, and the address control unit
- 2-29. When the FULL-DUPLEX/HALF-DUPLEX switch is in the FULL-DUPLEX POSITION, the transmit sidetone is processed for input to the computer.
1. True
 2. False
- 2-30. When the SIDEBAND SELECT switch is in the DIV position, which sideband signal is processed for input to the computer?
1. USB only
 2. LSB only
 3. The combination of the USB and LSB signals
 4. Either the USB or the LSB, depending on the signal quality of each sideband
- 2-31. During normal Link-11 operations, the DATA RATE switch on the mode control panel should be in which of the following positions?
1. 1,200 bps
 2. 2,400 bps
 3. DUAL 1,200 bps
 4. TADIL A
- 2-32. The SYNC MODE switch on the mode control panel is used in conjunction with which of the following switches on the TADIL A control panel?
1. OPERATE/RADIO SILENCE switch
 2. NET CONTROL/PICKET switch
 3. TIMING STORED/CORRECTED switch
 4. ERROR CORRECT/LABEL switch

2-33. When the SYNC MODE switch is placed in the FAST position, synchronization is obtained by which of the following methods?

1. Use of the frame timing reference stored during Net Sync
2. Use of the frame timing reference obtained from the preamble of the current message only
3. Use of the frame timing reference obtained at each data frame of the current message only
4. Use of both the frame timing reference obtained during the preamble and the frame timing of each frame of the current message

2-34. The NET BUSY indicator of the TADIL A control panel is activated by which of the following signals?

1. Signal presence
2. Receive mode
3. Transmit mode
4. Start code detected

2-35. When the SYNC COMPT indicator is lighted after the DTS has achieved which of the following conditions?

1. It is in sync with the radio
2. It is using stored synchronization signals
3. It is in sync with NCS
4. It is testing the internal sync circuits

2-36. The TIMING/STORED/CORRECTED switch is set to the STORED position. Which of the following signals will the DTS use for frame timing synchronization?

1. The frame timing reference stored during Net Sync
2. The frame timing reference obtained from the preamble of the current message only
3. The frame timing reference obtained at each data frame of the current message only
4. Both the frame timing reference obtained during the preamble and the frame timing of each frame of the current message

2-37. When the ERROR CORRECT/LABEL switch is in the CORRECT position, the DTS is capable of performing which of the following operations?

1. Detecting and correcting an even number of bit errors in the received data word
2. Detecting and correcting an odd number of multiple bit errors in the received data word
3. Detecting and correcting a single bit error in each received data word
4. Detecting and correcting a single bit error in the received data message

- 2-38. When you depress the TRANSMIT RESET switch on the TADIL A control panel, it causes the DTS to perform which of the following operations?
1. To immediately stop all transmissions
 2. To inhibit the generation of output data requests, generating a stop code and ending the current transmission
 3. To place the radio in radio silence
 4. To inhibit the generation of input data requests, generating a stop code and ending the current reception
- 2-39. The DTS is configured as a picket station in roll call mode. When you depress the TRANSMIT INITIATE switch on the TADIL A control panel, it will cause the DTS to perform which of the following operations, if any?
1. To immediately transmit the data
 2. To allow the unit to enter the net
 3. To assume control of the net as NCS
 4. None
- 2-40. On the NCS platform, the MISS CALL indicator on the TADIL A panel will light when a picket fails to respond to two successive interrogations.
1. True
 2. False
- 2-41. The address entered into the OWN STATION ADDRESS switches perform which of the following DTS functions?
1. Transmits the entered address to all other members of the net
 2. Transmits the entered address to NCS only
 3. Receives messages that match the entered address
 4. Transmits tactical data when the interrogation message address matches the entered address
- 2-42. On the NCS platform operating in a Link-11 net where the units are approximately 100 miles apart, which of the following values should be entered into the RANGE IN MILES switches?
1. 0 miles
 2. 25 miles
 3. 50 miles
 4. 100 miles
- 2-43. With a single address control indicator, an NCS platform can control what maximum number of participating units?
1. 5
 2. 10
 3. 15
 4. 20
- 2-44. Data exchange between the Link-11 DTS and the CDS computer is controlled by the DTS using which of the following control signal protocols?
1. External interrupts
 2. External functions
 3. Input data requests
 4. Output data requests

- 2-45. During a receive data cycle, the DTS performs which of the following actions when frame two of the stop code is detected?
1. The frame is processed as a data frame and sent to the computer
 2. The DTS processes the stop code and resets itself only
 3. The DTS sends the end of receive external interrupt to the computer
 4. The computer processes the stop code and closes the input data buffer
- 2-46. Which of the following actions is performed by the DTS when a control station stop code is received?
1. The DTS compares the next two frames received with the own station address
 2. The DTS resets all I/O timing circuits
 3. The DTS sends the next two frames received to the CDS computer
 4. The DTS sends the prepare to transmit data interrupt to the computer
- 2-47. When the DTS recognizes own station address, it transmits which of the following signals first?
1. Prepare to transmit interrupt
 2. The first frame of the preamble
 3. The phase reference frame
 4. Input data request
- 2-48. At the start of a transmit cycle, the output data request is first set active during which of the following frames?
1. The first frame of the preamble
 2. The first frame of the start code
 3. The phase-reference frame
 4. The second frame of the start code
- 2-49. Which of the following events takes place when the CDS computer does not answer an ODR from the DTS within the specified time limit?
1. The DTS generates the stop code
 2. The DTS hangs-up
 3. The computer generates an external function to clear the DTS
 4. The computer sends a stop code to the DTS
- 2-50. Which of the following events occur if an interrogated picket station does not answer an initial interrogations from the NCS within 15 frame intervals?
1. NCS interrogates the next station
 2. NCS waits another 15 frame intervals
 3. Link-11 network hangs up
 4. NCS retransmits the interrogation to the unit that did not reply
- 2-51. A total of how many data tones are in the composite tone package developed by the DTS?
1. 13
 2. 14
 3. 15
 4. 16

- 2-52. The intelligence (data bits) in a data tone is stored by which of the following methods?
1. Phase shifting the tone by a predetermined amount with respect to the following frame
 2. Phase shifting the tone by a predetermined amount with respect to zero degrees
 3. Phase shifting the tone by a predetermined amount with respect to the preceding frame
 4. Increasing or decreasing the amplitude of the data tone with respect to the preceding frame
- 2-53. During receive operations, exactly how many EDAC bits are extracted from the received data tones?
1. One
 2. Two
 3. Five
 4. Six
- 2-54. The EDAC bits enable the DTS to correct a total of how many received bit errors?
1. One
 2. Two
 3. Three
 4. Four
- 2-55. When operating the Link-11 with a UHF radio set, you should place the SIDEBAND SELECT switch in what position only?
1. LSB
 2. USB
 3. DIV
 4. AUTO
- 2-56. With Link-11 transmitting on the HF range and the sideband select switch set to the AUTO position, which of the following priorities are used by the DTS to find the data word with no errors to send to the computer?
1. LSB, USB, DIV
 2. LSB, DIV, USB
 3. DIV, LSB, USB
 4. DIV, USB, LSB
- 2-57. The Link-11 radio set is in the transmit mode when the key line is clear.
1. True
 2. False
- 2-58. Which of the following conditions would NOT be a valid reason for changing the unit functioning as NCS in a Link-11 net to improve net communications?
1. The current NCS has one PU address entered wrong
 2. The current NCS has poor receiver sensitivity and is polling on top of PU responses
 3. Several PUS are in a propagation shadow
 4. Several PUs are out of range of the current NCS unit
- 2-59. Changing frequencies will always solve Link-11 problems.
1. True
 2. False

- 2-60. When you keeping the radio set tuned to output maximum power, it causes which of the following problems?
1. Increases RFI/EMI on the transmitting unit only
 2. Increases receive data errors on receiving units by saturating the data terminal sets only
 3. Increases RFI/EMI on the transmitting unit and increases receive data errors by DTS saturation
 4. Decreases RFI/EMI on the receiving units
- 2-61. When the NCS enters dummy PUs, which of the following net conditions will exist, if any?
1. Net efficiency increases
 2. Netcycle time decreases
 3. Netcycle time increases
 4. None, dummy PUs have no effect on the net
- 2-62. What following NCS action is the most effective net management technique when a PU is having trouble maintaining Link-11 communications?
1. Continuing normal Link-11 operations while the trouble PU
 2. Directing the PU to go to radio silence so that the PU does not respond to interrogations
 3. Directing all units to change from a HF frequency to an UHF frequency
 4. Removing the troubled PU from the polling sequence until the problem is corrected and the troubled PU is ready to reenter the net
- 2-63. When you set up the DTS to run a single-station POFA, the DTS must be configured to operate in which of the following modes?
1. Simplex
 2. Half duplex
 3. Full duplex
 4. POFA TEST mode
- 2-64. When you run a single-station POFA with the radio set which of the following equipments is/are NOT checked?
1. Security device I/O path
 2. Antenna coupler
 3. DTS-to-radio audio lines
 4. Radio-to-DTS audio lines
- 2-65. Running a single-station POFA can assist the technician in isolating a problem in which of the following sections of the DTS?
1. Receive timing
 2. Doppler correction
 3. DTS to antenna interface
 4. Transmit timing
- 2-66. A single-station POFA should print the interrupts in what sequence?
1. End of receive, prepare to transmit, prepare to receive
 2. Prepare to receive, prepare to transmit, end of receive
 3. Prepare to transmit, end of receive, prepare to receive
 4. Prepare to transmit, prepare to receive, end of receive

- 2-67. A single-station POFA error printout that lists bit errors that are less than 10 percent of the total words transmitted is considered a successful POFA.
1. True
 2. False
- 2-68. A single broken line in the switchboard between the DTS and the crypto device could cause which of the following problems?
1. One bit always set to a logic "1"
 2. One bit always set to a logic "0"
 3. All bits randomly set to a logic "1"
 4. All bits randomly set to a logic "1" or a logic "0"
- 2-69. The multi-station POFA is run in which of the following modes?
1. Net test
 2. Roll call
 3. Broadcast
 4. Short broadcast
- 2-70. When a multi-station POFA is run, what total number of data words are in each block of data transmitted?
1. 115
 2. 230
 3. 345
 4. 460
- 2-71. When a multi-station POFA is run, all units participating in the test should be positioned within how many miles of each other?
1. 25
 2. 50
 3. 75
 4. 100
- 2-72. A multi-station POFA should be run using which of the following frequencies?
1. Any HF frequency
 2. Any UHF frequency
 3. The current operational frequency only
 4. The current secondary frequency only
- 2-73. The multi-station POFA should be run for what minimum amount of time?
1. 5 minutes
 2. 7 minutes
 3. 10 minutes
 4. 15 minutes
- 2-74. At the completion of the multi-station POFA, the technician should record which of the following information on the error printout?
1. Distance and bearing of all PUS
 2. Frequency used
 3. Start and stop time of the POFA
 4. All of the above
- 2-75. A multi-station POFA should be considered successful when the link quality factor is which of the following values?
1. Greater than 90 percent
 2. Greater than 100 percent
 3. Greater than 95 percent but less than 100 percent
 4. It must equal 100 percent